

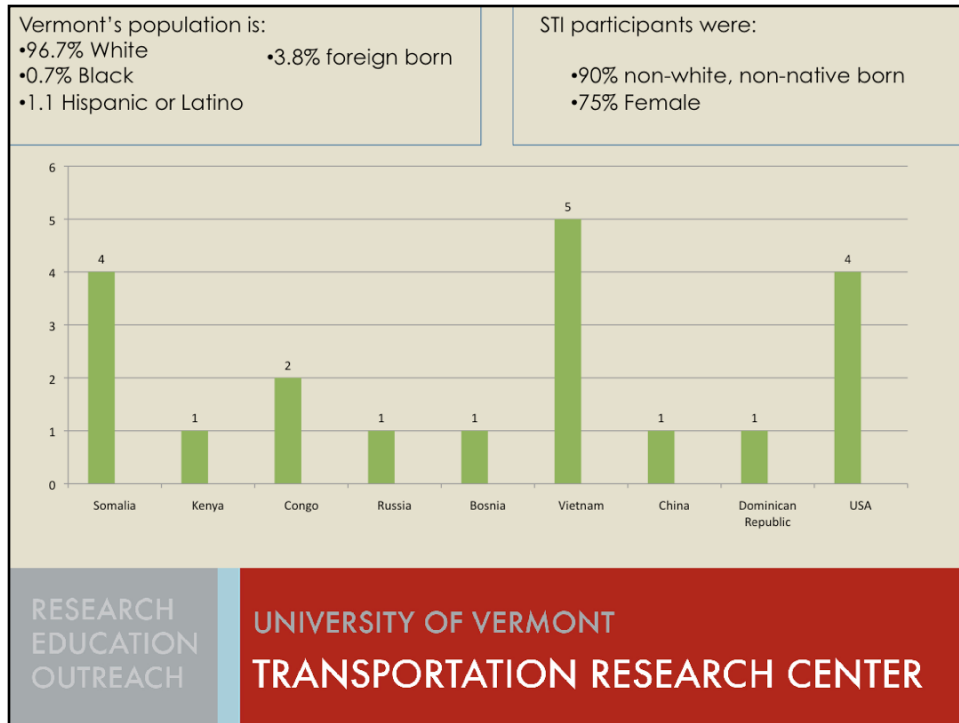
Increasing Diversity through  
Partnerships

For a Summer Transportation  
Institute



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TRANSPORTATION RESEARCH CENTER



- In a state of 620,000 which is:
- 96.7% white,
- 0.7% black,
- 1.4% Asian,
- 1.1% Hispanic or Latino origin and
- 3.8% foreign born
- 20 high school students from Greater Burlington, Vermont (population 140,000) participated in a four week residential program.
- All students stayed on campus Sunday – Thursday nights and returned home for the weekend.
- They ranged in age from 14 to 18 years.
- Only 4 of the 20 students were native born Americans. The other 16 or 80% represented eight different countries.
- 50% of the native born Americans were Caucasian.
- Ten of these students were English as a Second Language (ESL) students.
- For some of these students English was their third or fourth language.
- 90% were non-white, non-native born and 75% were female.



- Reaching underserved and underrepresented communities is a key goal of workforce development initiatives broadly within the US DOT.
- How did we do this?



In partnership with the Upward Bound Program (UB) at the University of Vermont (UVM), which is funded by the US Department of Education, the UVM Transportation Research Center (TRC) served as the coordinating and hosting entity for the 2008 Summer Transportation Institute (STI), funded by FHWA.



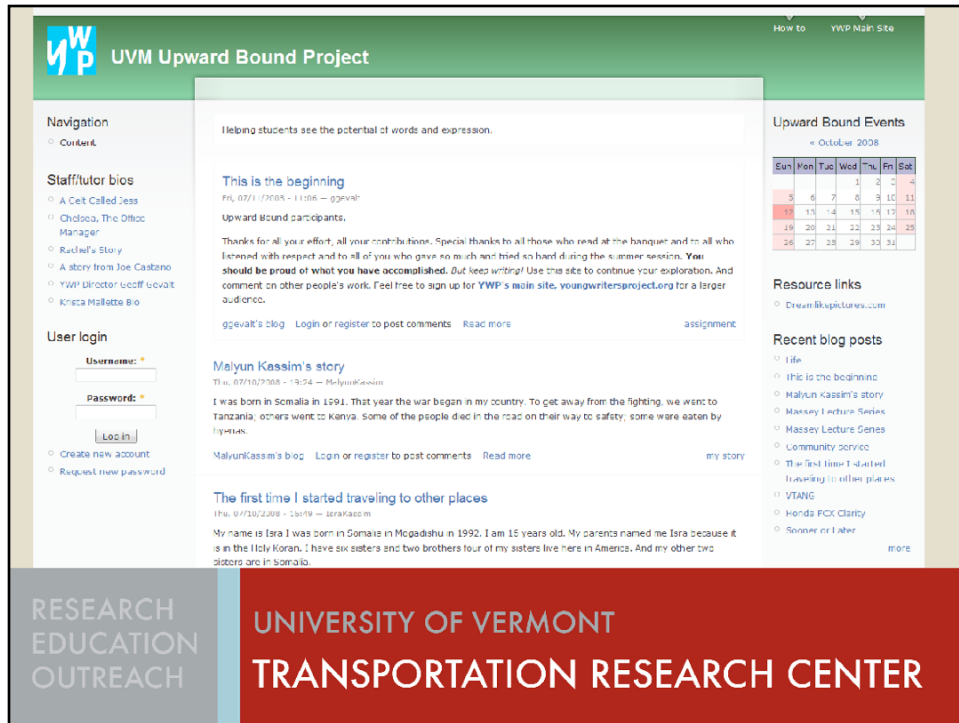
- The partnership with UB, the inclusion of a large percentage of ESL students and using the Young Writers Project (YWP) and its on-line writing element enabled a more diverse group of students to participate in the STI.
- It is these partnerships that enabled the STI to serve a diverse student population.



- All students were recruited and selected by UB, one of the TRIO programs created in the 1960's as part of President Johnson's "War on Poverty".
- Upward Bound's criteria for inclusion in the program are:
  1. The student's family income.
  2. Being the first generation in his/her family to aspire to go to college.
- Participation in the program was free.
- There are no academic or GPA requirements for selection.
- Only US citizens or permanent residents are eligible for UB.
- The year round structure of UB adds a quantifiable depth to this program.
- The STI focused on 4 weeks of programming; however, there is a year round level of outreach and contact with the students through our partnership with UB.
- The overlapping objectives of the STI and UB program are twofold:
  1. To expose students to career opportunities within the transportation industry and,
  2. To provide students with a college experience.



- The UVM TRC worked with UB to create a holistic, dynamic and relevant curriculum for their students.
- Each week of the 4 week institute was focused on a different transportation theme.
- The curriculum was integrated to assure maximum impact.
- For instance the students wrote about the transportation field trip and speakers through the YWP.
- Embedding transportation within the curriculum gave it added depth and texture.
- The four weeks of the STI included core academics:
  1. Math,
  2. English (provided by the Young Writers Project),
  3. ESL,
  4. ASL and
  5. SAT preparation,
- There were also recreational opportunities, team building and diversity awareness training in addition to the Transportation themed speakers.



- The twenty students selected for the STI presented a unique perspective as evidenced in their writing. By including the YWP students were able to express themselves through writing, using on-line blogs.
- They commented on each other’s writing and will be able to continue writing and reading through the on-line site created for this program.
- The YWP is a 501(c)3 that began with a two year grant from the Vermont Business Roundtable in 2006.
- It is supported through foundation grants and media partners.
- The vision of the YWP is to operate a safe, respectful online community where young writers share ideas, comment on each other’s work, learn from mentors and professionals and connect with the world.



- In one of their first writing projects they were asked to tell their story.
- Their stories provide a moving insight into their views of transportation and the role of civil government.
- From fleeing war zones, to UN refugee camps, to arriving in the US and finally to Vermont these children have experienced a life quite unfamiliar to and quite distinctive from native born Vermonters.
- One student wrote of fleeing Somalia, through Tanzania and people dying on the road and being eaten by hyenas.
- Another student wrote about the first time he saw blue eyes.
- Yet another wrote about being told his family's name was on the UN Board, meaning they were to receive passage to the United States.
- The students' writing not only vividly exposed the hardships of their lives but also showed the challenges of communicating with new immigrants and assessing comprehension and the effectiveness of the program.
- Working with these students required us to re-think our basic assumptions about rising 10th through 12th graders.
- For instance, students arriving from refugee camps had not learned basic keyboarding skills.



- Students were involved in field trips and labs.
- Knowing that many of these students would soon be driving we felt it critical to stress driving safety throughout the four weeks.
- Students explored transportation safety from the designer and driver perspective.



- This field trip included a mock crash, the Seat Belt Convincer and using “drunk goggles” to simulate driving and walking drunk.



- Although several of them were of age, none of the students had their driver's license. One student experienced her first driving experience on the field trip.
- “Today was my first time driving a CAR!!!! The feeling from this experience was indescribable. I only had my permit but I didn't know how to drive. I don't think driving was safe because I learned that a lot of people killed in fatal car accidents because their fault or others in the road.”



Another field trip was to an active bridge project where students picked up tips for their next assignment.



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Designing and building a bridge out of candy using knowledge they gained from the speakers and field trip.



Each student was given a bag of the same food supplies with which to build a bridge.



Prizes were award for most creative, structural, functional, edible and overall



- The students had a lab twice a week.
- In a synergistic way the UVM TRC was able to conduct lab study using our existing research projects and grad students as base instructors.



Here students are conducting a lab study of porous pavement.



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To conduct the experiment, students secured cylinders of the pavement mixture in a plastic tube and, using beakers of water and stopwatches, recorded the rates at which water ran through it.



The students then added road salt and/or sand and repeated the experiment, effectively simulating the qualities of absorption on our northern roadways.

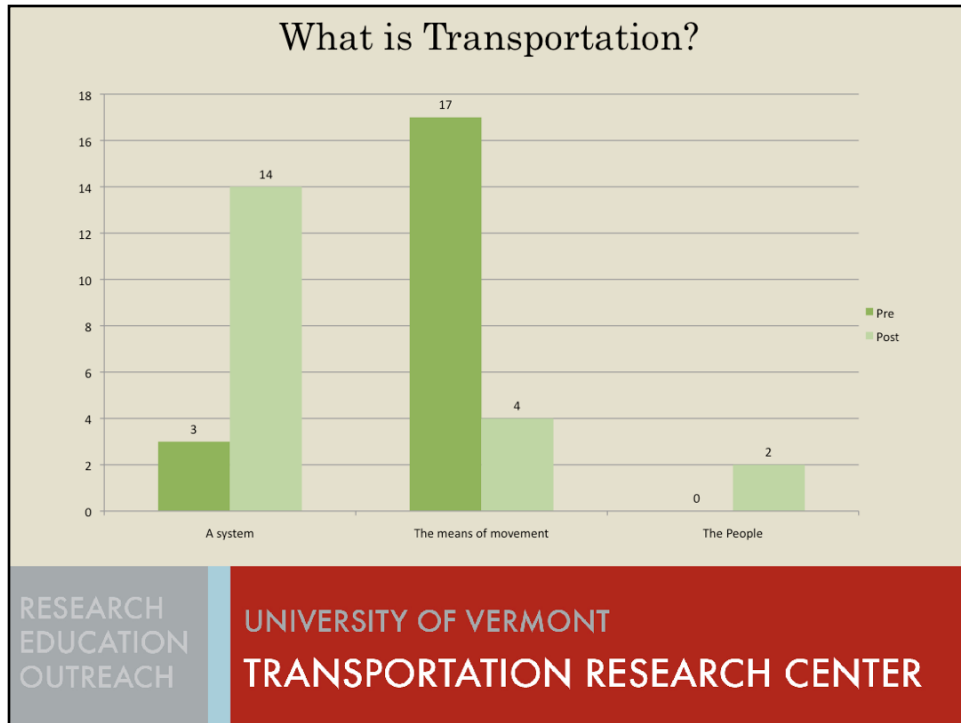
## EVALUATION

1. What is transportation?
2. What are the problems with our transportation system?
3. What are the potential solutions to our transportation problems?
4. What type of people work in the transportation industry?

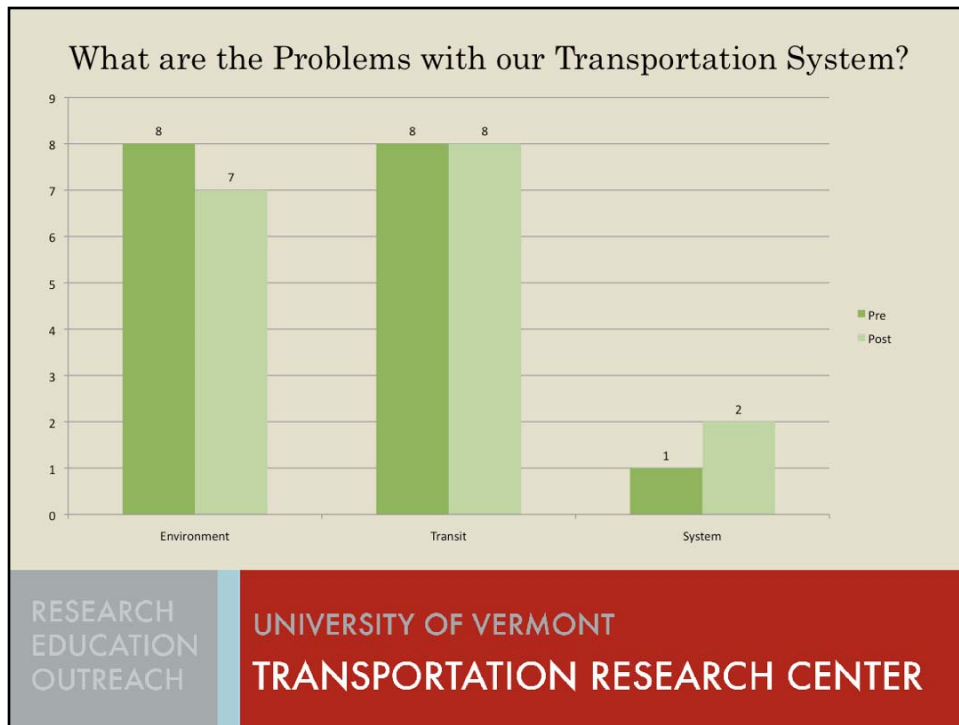
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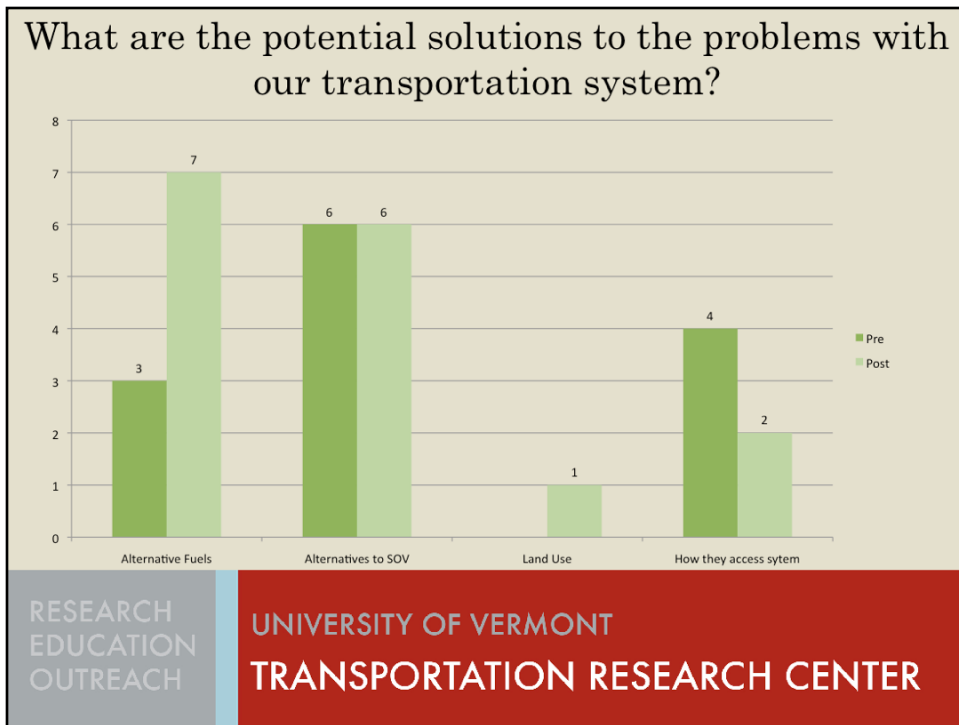
- Both quantitative and qualitative evaluations were conducted of the program. The evaluations looked at change in the students' perception of transportation and their views on the programs.
- Students received pre and post evaluations to measure the effectiveness of the program and to judge their views on the transportation sector.
- The quantitative measures used a four-point scale from Strongly Agree; Agree; Disagree; to Strongly Disagree. There was no neutral option provided.
- By reading the full transcripts of responses to the pre and post survey themes were distilled using keyword searches. Responses using these keywords were then coded and the totals tallied. All the students writing were available through their on-line blogs.
- For the qualitative evaluations the students were asked four open ended questions.



- The students' initial responses to the question "what is transportation?" were focused on the means of transport.
  - 14 respondents mentioned cars, planes, or busses,
  - 3 mentioned walking and
  - 3 mentioned the general concept of moving from point A to point B.
  
- The post survey responses showed
  - 14 respondents mentioning the larger concept that transportation is about the system of moving people and goods.
  - 4 respondents mentioned the vehicles and
  - 2 mentioned the people who run the system.
  
- As shown above the change in perspective from the means of movement to a system of movement is dramatic.



- In response to the second question, What are the problems with our transportation system,
  - 8 of the respondents in the pre-survey responded with comments about busses,
  - 8 responded with concerns about the environment,
  - 1 felt the problem was lack of access to a car and
  - 1 responded with concerns about the overall system and its impact on land use and health.
  
- The post survey showed
  - 7 concerned with the environment,
  - 8 concerned with the lack of transit and
  - 2 concerned with the overall system, land use and the budget to maintain the system.
  
- While the categories of their concerns did not shift much during the four weeks the quality and depth of their comments did.
- As shown the pre-survey responses reflected more of their personal interactions with the transit system while the post-survey responses were more about the transit system.

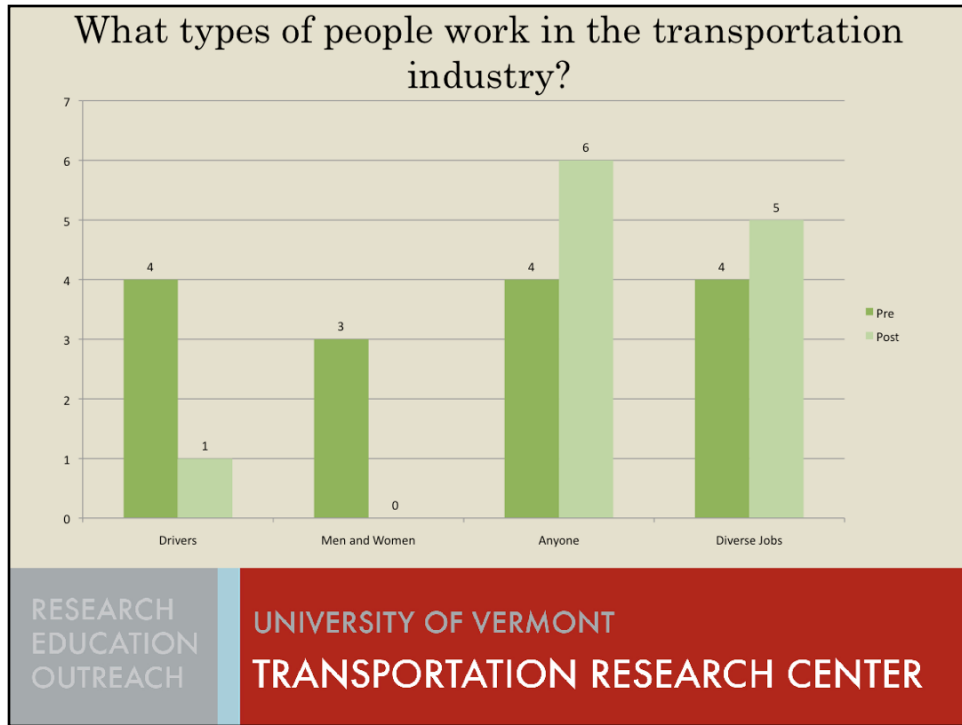


- The pre-survey responses to the third question “What are the potential solutions to our transportation problems?” focused on alternatives to the single occupant vehicle (SOV),

- 3 focused on alternative fuel sources and
- 4 focused on how they personally accessed the transportation system.

- In the post-survey

- 7 responses focused on alternative fuels and
- 6 on alternatives to the SOV,
- 2 wrote about how they personally access the system and
- 1 on land use.



- The answers to the final question asked in both the pre and post survey, “What type of people work in the transportation industry?” exposed a much broader view of transportation, as shown above.
- The pre-survey had 3 responses indicating that both men and women could work in transportation an indication of the cultural perspective some students brought to the program.
- The post survey showed a shift from the view of transportation as people who drive vehicles to diverse job opportunities.



- There was a 5% increase in students responding that they either strongly agreed or agreed that they would seriously consider a career in the field of transportation from before the program started to the last week.
- Students were exposed to career opportunities in transit, aviation, maritime, policy, environmental, advocacy, engineering, research and civil engineering.
- Increasing awareness of career opportunities in transportation is a stated goal of the STI.
- Increasing awareness of career opportunities in general is a goal of UB. These results show that this component needs to be strengthened.



- While students may not have flocked to the transportation industry as a career choice their writing indicates an increased awareness of the role of transportation.
- “In upward bound i have learned how transportation is working in the united states.”
- “...summer college have been given me education about transportations and environment, college experiences, and opportunities to see other career fields...The most useful thing I have learned so far in Upward Bound is learning about different career fields that I didn't know before or new to me because it helps me to explore other careers and also I don't know what I want to be in the future.”
- “I learned a lot about different career fields and what you need to do to accomplish them. I also learned a lot about transportation. It kind of got me thinking about what I want to do in the future.”



- The perspective provided by a group of students where only 10% were native-born and white Americans was enriching and inspiring.
- Bringing together a non-traditional group of students to explore transportation enabled teacher and student alike to see transportation through new eyes.
- The students' views on transportation began with very personal perspectives and developed into a system perspective during their four week residency.
- The evaluations show a change in perspective and thinking about transportation from their personal experiences to a higher level awareness of a larger system with impacts beyond their immediate world.
- The strong partnership with UB provides opportunity to leverage additional resources and to attract a diverse group of students Summer Transportation Institutes.**
- Even in a state that is 96.7% white you can, through strategic partnerships, reach minority populations.**